

Night at the Museum

Because of the uneven distribution of solar radiation, the equatorial regions are constantly receiving more radiation than polar areas so that equatorial areas could have been getting continuously warmer, and polar regions cooler. This would be a global catastrophe if it were not for the humble water molecule.

You have been employed to create a museum exhibit in the Natural History Museum to show the general public how excess solar radiation at the equator is transported around the Earth to prevent the global catastrophe. You are asked to write the placards for the exhibit that explain heat capacity of water, latent heat of vaporization, and how atmospheric and ocean circulation contribute to the global heat transport.

You will want to start your exhibit with the initiation of the atmospheric circulation by discussing what causes air convection before continuing onto atmospheric heat transport and the transfer of energy related to the latent heat of vaporization. The next section of your exhibit will focus on surface ocean circulation (gyral circulation) as well as the oceanic heat transport associated with the high heat capacity of liquid water. Organize your display by writing a sentence connecting different sections. You may illustrate your display but please cite where your images came from.

Keep in mind:

- *Your audience is general public so make sure your placards are understandable to those with minimal oceanography knowledge while still using precise terminology.*
- *Make sure your exhibit flows smoothly for improve audience understanding.*
- *You should edit and proofread your placards carefully.*
- *External references are not required but if you use them they should be cited using MLA format.*
- *The script should be 400-500 words long.*

Rubric

Criteria

For atmospheric heat transport:

1. Was the generation of low-density air via heat radiation from earth, the addition of water vapor and rising air discussed?
2. Was low-density air at the equator linked to convection in the atmosphere?
3. Was convection discussed as an efficient heat moving process?
4. Was an explanation for how the latent heat of vaporization takes energy out of the ocean and releases it the atmosphere provided?

For oceanic heat transport:

1. Was the high heat capacity of liquid water related to how surface waters cool/warm as they move?

2. Was the movement of liquid water from equator-pole-equator related to the gyral transport of water around the planet?

Writing

- Was the exhibit understandable to general audience?
- Was the exhibit presented in the logical order and flowed smoothly?